



Deputy Under Secretary of Defense

## Advanced Systems & Concepts

SUCCESS STORY

### ACTD's Satellite to Forecast Communications Outages

The satellite from the Communications/Navigation Outage Forecasting System (CNOFS) ACTD is providing the Department of Defense with its first capability to forecast disruptions to satellite communications.

In fall 2003, severe solar flares sent energy through space disrupting

the Earth's upper atmosphere and affecting spacecraft, aircraft, and power grids. Such solar events cause scintillations, which can disrupt satellite communication and navigation signals -- including those needed in U.S. military operations.



*Solar flare*

The CNOFS' satellite is designed to forecast disruptive space weather so that likely communications/navigation outages can be anticipated. The satellite was launched into space in the spring of 2008 via a Pegasus rocket, released from L-1011 carrier aircraft that originated from the Reagan Test Site, Kwajalein, Marshall Islands.



*L-1011 aircraft used to launch Pegasus rocket carrying satellite into space*

The goal of the project is to detect regions of active scintillation, forecast them three to six hours before they begin, and extend the predictions to 24 hours and as long as 120 hours. The satellite was developed by the Air Force Research Lab (AFRL), and it has six onboard sensors for assessing ionospheric conditions and predicting disrupting scintillations. The desired end-result will be outage maps that are distributed to warfighting units.



*CNOFS Satellite*

The DoD Space Test Program will evaluate the satellite's capabilities for a year. The ACTD program partnered with the Air Force's Space and Missile Center, the AFRL, and the U.S. Strategic Command on this project.

For more information on the JCTD Program, visit: <http://www.acq.osd.mil/jctd/>.